

The Claims

What is claimed is:

5 1. In a destacking device that includes at least one gripper having a pair of jaws for handling a stack of rolled fragile structures with or without sleeves, the improvement which comprises making at least the portion of the jaws of the gripper that come into contact with the structures of an elastic material so that the structures can be handled and moved at high cycle rates with little or no breakage.

10 2. The destacking device of claim 1, wherein the jaws are formed essentially from a silicone or polyurethane material.

15 3. The destacking device of claim 1, wherein the jaws are configured and adapted to conform to the structures or to the stack of such structures.

 4. The destacking device of claim 1, wherein the jaws have two lips which run parallel in a longitudinal direction and are arranged in a V-shaped manner transversely to the longitudinal direction.

20 5. The destacking device of claim 1, wherein the jaws are fastened in an easily exchangeable manner on a carrier.

25 6. The destacking device of claim 1, wherein at least one gripper is an individual gripper of a moveable design that is configured and operatively associated with the device to separate an end structure from the stack of such structures and move it to a discharge location.

30 7. The destacking device of claim 6, wherein at least one gripper is a stack gripper that grips the structures of the stack of structures except for the end structure.

8. The destacking device of claim 7, wherein the individual gripper and the stack gripper are connected to control means which is configured to cause the grippers to execute the following steps:

- a) retaining the stack by the stack gripper and retaining an end structure of the stack by the individual gripper ;
- b) moving the individual gripper in order to separate the end structure as an individual structure from the stack and to transport it to a discharge location;
- c) opening the individual gripper in order to set down the individual structure at the discharge location;
- d) closing the individual gripper and moving it back to the stack;
- e) opening the stack gripper in order to allow the stack to move further by one structure;
- f) closing the stack gripper in order to retain the stack;
- g) repeating steps a) to f), as necessary to remove all structures from the stack.

9. The destacking device of claim 1, which includes at least one nozzle which is directed onto an end of the stack and has a gas-supply line which expels a gas stream which assists the separation of the end structure from the stack.

10. The destacking device of claim 1, wherein the structures are handled and moved at around 60 cycles per minute with a reject or breakage rate that is less than or equal to one structure per thousand structures handled.

11. The destacking device of claim 1, wherein the structures are wafer cones that are intended to receive ice cream or similar confectioneries .